the depressed pattern **100c** is a mold and the resulting bottom surface **101** of the stent **100** is rounded and convex. As a result, intricate patterns not previously possible with the prior art are possible with the present invention. Further, sharp edges are avoided on the interior surface **101** of the stent. Also, while the interior surface **101** of the stent **100** is rounded and free of sharp edges (which is desirable with balloon catheters), the outer surface **103** of the stent **100** is cylindrical conforming to the interior surface of the lumen.

Many other advantages are attained by the present invention. For example, through multiple masking and etching processes, a depressed pattern of varying depths can be formed. Such a depressed pattern will form a stent with structural members of varying thickness. This will give stent designers added freedom when designing stents, catheters and other intraluminal devices with enhanced properties. Also, multiple layers of materials can be placed in the depressed pattern. For example, a radiopaque layer may be vacuum deposited between two layers of other materials selected for better tissue or blood compatibility.

A wide variety of materials can be used with the present invention. By way of non-limiting example, the stent material can be tantalum, niobium, zirconium, titanium or platinum vapor applied on a stainless steel mandrel. Also, the stent could be molten stainless steel cast onto a molybdenum or tungsten mold. The foregoing examples are non-limiting and are given solely to illustrate the numerous permutations of alternatives for materials and processes in keeping with the teachings of the present invention.

While the mandrel's depressed pattern has been described in a preferred embodiment as being chemically milled (as described in U.S. Pat. No. 5,741,429), the depressed pattern could be formed in any suitable manner including laser milling, EDM (electro-discharge machining), cast or machined. Likewise, the stent material can be deposited in the depressed pattern in any one of a number of suitable ways. Without limitation, these include:

1. casting the stent material as a molten material poured into the depressed area and retained by an outer casing;
2. electro-forming;
3. forge or crimped (i.e., an outer tube of stent material is placed surrounding the mandrel and forcibly urged into the depressed area);
4. sputter deposition;
5. ion plating; and
6. placement as a powder metal later sintered.

From the foregoing, it has been shown how the present invention has been attained in a preferred embodiment. Modifications and equivalents of the disclosed concepts, such as those which are apparent to one skilled in the art, are intended to be included within the scope of the appended claims.

What is claimed is:

1. A method for forming a generally tubular device for placement in a lumen of a patient's body, the method comprising:

(a) coating an external surface of a mold with a coating;

(b) removing a portion of the coating to form a pattern corresponding to a desired shape of the generally tubular device for placement in a lumen of a patient's body;

(c) forming a depressed pattern in the external surface of the mold with the depressed pattern corresponding to the pattern in the coating and the desired shape of the generally tubular device for placement in a lumen of a patient's body;

(d) depositing a material in the depressed pattern for the material to form the generally tubular device conforming with the depressed pattern; and

(e) separating the generally tubular device from the mold.

2. A method according to claim **1** wherein the step of separating the generally tubular device from the mold comprises:

(a) separating the generally tubular device from the mold by chemically etching the mold while leaving the tubular device substantially unetched.

3. A method according to claim **1** wherein the step of coating an external surface of a mold with a coating comprises:

(a) coating an external surface of a substantially cylindrical mold with the coating.

4. A method according to claim **3** wherein the step of forming a depressed pattern in an external surface of the mold comprises:

(a) forming a depressed pattern in an external surface of the substantially cylindrical mold, the depressed pattern surrounding a cylindrical axis of the mold.

5. A method according to claim **4** wherein the step of forming a depressed pattern in an external surface of the substantially cylindrical mold comprises:

(a) chemically etching the depressed pattern into the external surface of the substantially cylindrical mold.

6. A method according to claim **1** wherein after the step of forming a depressed pattern in the external surface of the mold and before the step of depositing a material in the depressed pattern, removing the coating from the external surface to expose an undepressed remainder.

7. A method according to claim **6** wherein the step of depositing a material in the depressed pattern comprises:

(a) depositing a material in the depressed pattern and at least partially on the undepressed remainder.

8. The method according to claim **7**, further comprising:

(a) removing the material from the undepressed remainder.

9. A method according to claim **5** comprising:

(a) applying a photo-resist coating to the external surface of the mold;

(b) photo-imaging a pattern corresponding to the depressed pattern onto the photo-resist coating;

(c) developing the photo-resist coating to remove the pattern and expose the external surface of the mold corresponding to the depressed pattern; and

(d) chemically etching the mold to remove mold material exposed by the pattern and form the depressed pattern.

10. A method according to claim **1** wherein the step of depositing a material comprises:

(a) vapor depositing of the material.

11. A method according to claim **1** wherein the step of depositing a material comprises:

(a) flowing the material in a molten state into the depressed pattern.

12. A method according to claim **1** wherein the step of depositing a material comprises:

(a) surrounding the external surface of the mold with a tube of the material; and

(b) urging the material radially inwardly into the depressed pattern.

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